

REMARKS

This is in response to the Office Action mailed on October 10, 2006 in which the Examiner rejected Claims 1-20. Claims 1-2, 5-7, 9-11, 13, 16, 19 and 20 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,116,891 by Starkey. Claims 1-4 and 9 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 2,890,488 by Gemberling. Claims 1-2 and 7 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,443,723 by Buttgieg. Claims 8, 12 and 17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Starkey in view of U.S. Patent No. 6,637,498 by Macheske. Claims 14, 15 and 18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Starkey in view of Buttgieg.

Starkey

Independent Claims 1, 9 and 16 were rejected as being anticipated by Starkey. The Office Action asserts that Starkey discloses the following elements, among others, that comprise the present invention: base 22, slide 18, cam lever 40 and tracks inside base 22. The Office Action does not further elaborate as to how these elements are connected to disclose the present invention, but merely states that they are disclosed.

The currently amended claims require that the base be mounted to a first or stationary side block, and that the cam lever be mounted to a second or movable side block. “[B]ase 24 is mounted to a movable-die half apparatus ..., and head 44 of cam 28 is directly fixed to a fixed-die half” of a molding or casting system. (App. Page 9, lines 5 – 7.) When the movable-die half retracts from the fixed-die half, cam lever 28 pushes slide 26 along base 24. (App. Page 9, lines 8 – 12.) When the movable-die half closes with the fixed-die half, cam lever 28 reinserts into slide 26 to push slide 26 along base 24. (App. Page 9, lines 13 – 17.) Thus, the present invention relies on the relative motion of the die halves to insert and retract slide 26.

Base 22, slide 18 and cam lever 40 of Starkey are all connected to stationary die half 14. Starkey discloses cavity die half 16, which is movable with respect to stationary die half 14. Cam lever 40 is not connected to die half 16 as is required of the present invention. Starkey teaches away from mounting a cam lever on an opposite die half as the slide assembly. The invention of

Starkey eliminates the necessity to modify both halves of the mold. (Starkey Col. 1, lines 25 – 67.) The parts comprising cam mechanism 10 of Starkey “are all attached in the mold 12, preferably in the core mold half 14, as shown in FIGS. 2 and 3.” (Starkey Col. 6, lines 47 – 64.) “Thus, the cam mechanism 10 does not require that there be substantial modifications to the cavity half 16 for the components of the cam mechanism 10 as with prior side-action cam mechanisms....” (Id.) Starkey includes spring 30 “for biasing of the actuator portion 28 upwardly out from the housing 22.” (Starkey Col. 8, lines 25 – 30.) Relative motion of the mold halves is not required to retract slide carrier 18 within housing 22. Starkey fails to disclose a cam assembly that mounts to opposing surfaces of mold halves and thus fails to disclose every element of the present invention as recited in Claim 1.

With respect to Claim 9, the present invention is adapted to a universally adaptable slide assembly having rails. Slide 26 includes a pair of rails 86 and base 24 includes a pair of tracks 60. (App. Page 12, lines 7 – 16.) Base 24 is attached to a die or mold half such that rails 86 of a variety of slides 26 are readily inserted into base 24 to slide along tracks 60. (Id.) As can be seen from FIG. 6, the pair of tracks 60 are on the interior of base 24 for receiving rails 86 such that “slide 26 is completely entrained and mobile from within base 24.” (App. Page 9, lines 24 – 26.) Thus, “[S]lide 26 is not required to be individually designed or adapted to be compatible” with a die or mold half. (Id.) Claim 9 requires a pair of outward facing rails and a pair of inward facing tracks. The Office Action states that Starkey discloses tracks inside base 22. However, Starkey only discloses a central channel or a single track (opening 24) for receiving the whole of slide 18. Furthermore, slide 18 of Starkey does not include a pair of outward facing rails for riding in a track or pair of tracks.

Similarly, Starkey does not disclose a centrally positioned channel extending through the slide. The present invention includes a centrally positioned channel 70 having an angle corresponding to that of cam lever 28 for assisting in inserting and pulling faceplate 32. (App. Page 12, line 23 – Page 13, line 2.) As seen in FIGS. 3, 6 and 9c, slot 70 extends through the center of slide 26. Starkey does not disclose such a centrally positioned channel. Thus, Starkey does not disclose every element of the present invention as recited in Claim 9.

Gemberling

Independent Claims 1 and 9 were rejected as being anticipated by Gemberling. The Office Action asserts that Gemberling discloses the following elements, among others, that comprise the present invention: base 14, slide 15 and cam lever C (with head 100 and tail 36). The Office Action does not further elaborate as to how these elements are connected to disclose the present invention, but merely states that they are disclosed.

The present invention is directed toward a slide assembly for inserting and removing a core pattern from a mold or die cavity. “Face plate 32 is attached to the front of slide 26 and is ... exposed to the molding core.” (App. Page 7, lines 7 – 9.) “Face plate 32 may contain mold patterns or instruments that affect the shaping of the molds” such as pin 30. (App. Page 7, lines 9 – 11.) Cam lever 28 moves slide 26 such that faceplate 32 is engaged and disengaged from the molding core. (App. Page 9, lines 3 – 21.)

Gemberling is directed toward an injection nozzle shut off valve for an injection molding machine using the “hot runner” principle. Gemberling includes cavity section 13 and core section 15 that translate laterally by leg 36 as movable platen 11 translates vertically. (Gemberling Col. 3, lines 44 – 58.) As platen 11 is pulled away from stationary platen 10, leg 36 closes the mold to prevent the flow of plasticized molding composition. (Gemberling Col. 4, line 57 – Col. 5, line 11.) Thus, Gemberling does not disclose or contemplate a slide assembly for inserting and withdrawing a core pattern into and from a mold cavity.

Furthermore, with respect to independent Claim 9 and new dependent Claim 22, the present invention includes a removable faceplate. As mentioned above, faceplate 32 is attached to slide 26 by plate bolts 54. (App. Page 10, lines 1 – 3.) Faceplate 32 is attachable to different mold patterns for insertion into core C to create a shape within the molding or casting. (App. Page 7, lines 7 – 20.) Faceplate 32 thus adds another degree of flexibility to the universal design of the present invention. Neither Gemberling, nor any of the other cited references, teaches the use of interchangeable faceplates.

With respect to Claim 4, the Office Action asserts that Gemberling discloses a cam pin extending from a head at an angle between one-hundred-thirty and one-hundred-sixty degrees.

An inspection of the Gemberling patent reveals that leg 36 extends at an angle of about one-hundred-sixty-three degrees. Thus, with respect to Claim 4, Gemberling fails to disclose a cam pin having a tail extending between one-hundred-thirty and one-hundred-sixty degrees. As FIG. 10c of the present invention indicates, tail 46 extends from head 44 of an angle of about one-hundred-fifty-five degrees. New Claim 24 has been added to further define tail 46 as extending from head 44 at one-hundred-fifty-five degrees.

Additionally, with respect to Claim 9, Gemberling fails to disclose the use of a pair of internal tracks on a base, and a pair of outward facing rails on a slide. As discussed above, slide 26 of the present invention includes a pair of rails 86 and base 24 includes a pair of tracks 60. (App. Page 12, lines 7 – 16.) Gemberling does not disclose the use of rails and tracks and thus fails to anticipate the present invention.

Furthermore, Gemberling fails to disclose the use of a faceplate as discussed above and recited by claims 9, 22 and 26.

Buttigieg

Independent Claim 1 was rejected as being anticipated by Buttigieg. The Office Action asserts that Buttigieg discloses the following elements, among others, that comprise the present invention: base 16, slide 12 and cam lever 44 that extends through (with head 100 and tail 36). The Office Action does not further elaborate as to how these elements are connected to disclose the present invention, but merely states that they are disclosed.

The presently claimed invention includes a rectangular profiled cam pin with a flat face that mates with a flat surface on a slot of the slide to lock the slide with respect to the base. Cam lever 28 has a quadrangular profile, and slot 70 of slide 26 has a matching quadrangular profile. Specifically, FIG. 10c shows a side view of cam lever 28, and FIG. 10b shows a front view. Likewise, FIG. 9b shows a side view of slot 70 of slide 26. As can be seen in FIG. 4, tail 46 of cam lever 28 mates flush with slot 70 of slide 26 such that a large surface area of cam lever 28 contacts slot 70. When the movable-die half inserts cam lever 28 into slide 26, there is no play or slop in slide assembly 22. Thus, cam lever 28 retains slide 26 in place to prevent pin 30 from withdrawing from core C. When the movable-die half closes with the fixed-die half, “cam lever 28 securely locks

slide 26 with base 24, preventing slide 26 from retracting away from core C during a molding or casting cycle.” (App. Page 6, lines 14 – 16.) “Cam lever 28 is removably insertable into slot 70 of slide 26 for mechanically locking slide 26 to base 24.” (App. Page 10, lines 3 – 5.) “This prevents face plate 32 from retracting during a molding or casting cycle.” (Id.) Even cam levers with shortened tails move and retain slide 26 relative to base 24 via cam action. (App. Page 15, lines 19 – 21.) “[T]he cam action retains slide 26 in the forward position despite the fact that slide 26 and base 124 are not mechanically locked.” (App. Page 15, lines 11 – 13.) Thus, the mere force of cam lever 28 against slide 26 holds slide assembly 22 against core C of die half D.

Buttigieg includes pin 44, which moves slide 12 away from and toward part 50. However, when “mold 40 assembly is closed, as in FIG. 1, the heel block 42 contacts the end portion 38 of the cam slide 12 to hold the slide 12 securely in position during the molding process.” (Buttigieg Col. 3, lines 1 – 4.) As can be seen in FIG. 1, when block 42 engages slide 12, pin 44 is disengaged from bore 46 in slide 12. Thus, pin 44 does not retain slide 12 in contact with the part 50 in the mold cavity, but is there merely to initiate movement of slide 12.

Furthermore, Buttigieg fails to disclose the use of a base as required of the present invention. As described above, the present base 24 of the present invention is attached to a mold or die half such that various slides 26 can be used in conjunction with the molding or casting process through the rails and tracks. Slide 12 of Buttigieg is directly slidable on mold half 16 of mold 40 without the use of a base. (See Buttigieg, Col. 2, lines 34 – 41; Col. 5, lines 8 – 11.) Thus, Buttigieg fails to disclose the use of a slide that translates along a base on mating pairs of rails and tracks.

Macheske et al.

The Office Action indicates that Macheske teaches a hydraulic coupling 31 for the purpose of moving mold sections into place and the retracting them, etc. Dependent Claims 8, 12 and 17 have been amended to further describe the use of the hydraulic couplings of the present invention. “Coupling 34 also allows [a] hydraulic actuator to hold slide 26 in position while an injection molding or die casting product is being created by applying a constant pressure to slide 26.” (App. Page 7, lines 19 – 23.) Thus, the slide assembly of the present invention includes a secondary means for holding slide 26 in place. Macheske et al. only generally teaches the use of hydraulic

actuators for moving mold sections and other applications. (Macheske, Col. 1, lines 22 – 34.)

Macheske does not disclose the use of a hydraulic coupling as a secondary means for holding a slide in place relative to a base.

CONCLUSION

With the above remarks, independent Claims 1, 9 and 16 have been amended such that Starkey, Gemberling and Buttigieg fail to teach every element of the presently claimed invention. Thus, independent Claims 1, 9 and 16, as well as dependent Claims 4, 5, 7, 8, 12 – 14 and 17, 18 and 20 are in condition for allowance. Additionally, new Claims 21 – 26, which also depend from the now allowable independent claims, are allowable. A notice to that effect is respectfully requested.

Respectfully submitted,

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